A comparison of medical student competency, attitudes and knowledge of abortion care after a structured clinical curriculum

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Abstract

Background: Abortion care is a core educational objective according to the Association of Professors of Gynecology and Obstetrics (APGO), but clinical exposure is variable in medical education. The authors sought to compare professional competency, attitudes, and knowledge regarding abortion between students who attended a structured clinical experience in abortion care to those who chose a less-structured family planning clinical environment.

Methods: All medical students participating in the Obstetrics & Gynecology clerkship from 2014-2015 were invited to complete a pre- and post-clerkship survey and grouped based on their attendance to a structured clinical abortion experience at Planned Parenthood (PPCW) versus an alternative Family Planning Clinic (FPC) experience. Competency and attitudes about abortion were assessed using a 100-mm visual analog scale (VAS). Authors assessed knowledge about abortion with multiple-choice questions.

Results: A total of 89 students completed the surveys (PPCW: 74; FPC: 15). Students attending PPCW were more likely to observe counseling about abortion and ultrasound prior to abortion (PPCW: 67/74, 91%; FPC: 4/15, 27%, $p < 0.01$). More PPWC students observed a surgical abortion (91% versus 7% of FPC students). Competency scores improved with composite mean difference in VAS for PPCW of 42.2 mm and FPC of 27.3 mm ($p = 0.02$). Attitude scores were unchanged in those with initial VAS < 80 mm. Knowledge improved overall, with greater changes among the PPCW group.

Conclusions: A structured clinical abortion experience met APGO educational objectives more than an alternative experience. Future physicians should universally be exposed to clinical abortion care in order to ensure evidence-based education about abortion.

Background

Most physicians will care for patients who have had an abortion or are in need of this common procedure.¹ In 2014 alone, approximately 926,200 abortions were performed in the United States.² For comparison, it is estimated that 280,000 appendectomies are performed annually in the United States.³ However, the number of abortion providers continues to decline, and many women face barriers to accessing abortion services, including state-mandated biased, restrictive laws and medically inaccurate counseling.^{2,4} Physicians are also an unfortunate source of inaccurate information and stigmatization about abortion, possibly due to educational gaps.⁵⁻⁸ Abortion procedure training is typically only undertaken at the resident level among ob/gyn programs and is critical to ensure the presence of competently trained providers. However, undergraduate medical education that includes the medical necessity of safe abortion and professional obligations for patient referral is essential to ensure a knowledgeable healthcare workforce that will undoubtedly encounter patients requiring or requesting abortion care.

Medical student education has the potential to provide a broad-based understanding of abortion by all physician types, including medically-accurate counseling about abortion and recognition of complications. However, survey data demonstrate that exposure to abortion care during medical school, either via lectures or clinical observation is highly variable.^{9,10} Most medical school curricula for abortion care are set up as “opt-in” programs, where interested students seek out individual experience and training. Fewer programs are “opt-out” or “partial participation” programs. These clinical experiences in abortion care are typically included in the standard clerkship schedule, with direct or indirect clinical involvement in abortion.

Family planning educational curricula is well received by medical students.¹¹⁻¹³ After the University of New Mexico School of Medicine instituted a preclinical and clinical abortion curriculum with an optional clinical training opportunity, 96% of students surveyed reported that abortion was an appropriate topic for medical school education and 84% of the students who participated in the clinical training experience reported it was very important to their education.¹²

We hypothesized that a partial participation program during the Ob/Gyn clerkship would result in increased competency, attitudes and knowledge about abortion care. We were specifically interested in the effect of a clinical abortion environment on a student’s self-reported competence to counsel a patient about what to expect from an abortion. We hypothesized that those who attended a structured clinical experience in abortion care would have increased competency by the end of the clerkship, regardless of whether they observed an abortion, compared to those who had ad hoc exposure in a general family planning practice setting.

Methods

We conducted this pre-post observational cohort study at Oregon Health & Science University (OHSU) School of Medicine (Portland, OR) in November 2014 through November 2015. The study was approved for a waiver of consent by the OHSU Institutional Review Board. We approached all medical students during the orientation lecture on the first day of their 5-week Obstetrics & Gynecology clinical clerkship and invited them to complete two optional and anonymous surveys – a pre-clerkship survey on the first day of the rotation and then a post-clerkship survey on the final day of the rotation after the final exam. The surveys included the same core set of competency, attitude, and multiple choice knowledge questions.

Clinical experience groups

During the study period, the standard clerkship experience in abortion care included a one-hour didactic lecture on abortion and professionalism, including the institution’s conscientious objection policy. Students had pre-selected a clinical abortion care experience, which included either a half-day at the local Planned Parenthood affiliate (Planned Parenthood of the Columbia-Willamette, PPCW) or, alternatively, a half-day in the OHSU outpatient Family Planning Clinic (FPC), in addition to other experiences they may

have had during their rotation. At the structured clinical experience at PPCW, students observed patients undergoing all stages of preparation and counseling for a surgical abortion, including the procedure, unless not desired. In the alternative clinical experience at FPC, students participated in family planning visits, which sometimes included uterine aspiration procedures for miscarriage or abortion, but typically consisted of contraception consultations, permanent contraception, medical abortion, and pre-operative visits for first and second trimester surgical abortion. At both clinics they could choose their level of participation with being in the room for surgical abortion.

We used self-reported response to the post-clerkship survey about participation at PPCW to classify students into structured clinical attendance (PPCW) and non-attendance (FPC) groups. We classified students this way because the environment for abortion care at PPCW provides consistent educational opportunities and we wanted to measure whether attending a structured clinical experience changes attitudes or knowledge about abortion compared to ad hoc participation. Any student who reported experience in both clinics was classified in the “attendance” group.

We used a 100 mm Visual Analog Scale (VAS) to ask competency and attitude questions. The VAS is a 100 mm unmarked line with anchors on either side stating “Definitely No,” and “Definitely Yes.” Respondents were advised to make a single perpendicular mark on the line. Individual responses were averaged into a mean composite score for three VAS questions regarding competency and four questions assessing student attitudes regarding abortion and abortion education. We assessed the proportion of correct responses to five knowledge questions with multiple correct answer choices. We expected improvement in both groups, with group differences mainly for questions related to clinical procedures.

Data management and statistical analysis

We based our sample size calculation on an anticipated mean response on the post-clerkship survey to the following competency question, “I could adequately counsel a patient about what to expect from an abortion,” of 90 mm in the clinical abortion care attendance group and 60 mm in the non-attendance group, with an estimated standard deviation of approximately 30 mm for each group. We estimated that approximately 75% of students would attend the clinical abortion experience. Therefore, we planned to obtain completed surveys for at least 32 subjects in the attendance group and 11 in the non-attendance group to show a significant difference between group means using a one-sided t-test with 80% power and alpha of $p < 0.05$.

We managed data using REDCap electronic data capture tools hosted at OHSU. REDCap (Research Electronic Data Capture), is a secure web-based application designed to support data capture for research studies.¹⁴ Paper surveys were batched for data entry at two time-points to ensure anonymity. Data were then exported for analysis in STATA/IC 14.2 (StataCorp LP, College Station, TX). Data were analyzed using t-test for means and chi-square test of proportions as well as non-parametric tests where appropriate.

Results

Eighty-nine students provided responses to the pre and post-clerkship surveys. The majority attended PPCW (74/89, 83%) and 15/89 (17%) attended FPC. 67/74 (91%) of students who attended the structured clinical abortion experience at PPCW participated in clinical abortion care, while only 4 of the fifteen (27%) FPC students observed any part of clinical abortion care.

Clinical experience with abortion included observation of a surgical abortion procedure for 68/89 (76%) of students at both sites, which primarily occurred at PPCW (Table 1). More often, students observed either patient counseling about abortion (71/89, 80%) or an ultrasound examination prior to abortion (71/89, 80%). A majority of PPCW students (67/74; 91%) and no FPC students participated in the examination of products of conception, a critical step in confirming sufficient uterine evacuation.

Table 1

Characteristics of medical student respondents surveyed following a clinical clerkship in Obstetrics & Gynecology.

Characteristic, n	PPCW ^a n = 74	FPC ^b n = 15
Mean age (range)	28.6 (24–39)	29.2 (26–35)
Reported gender (%)		
Female	39 (52.7)	8 (53.3)
Male	35 (47.3)	7 (46.7)
Intended medical specialty (%)		
Primary care or Ob/Gyn	26 (35.1)	5 (33.3)
Pediatrics/medicine/ED	18 (24.3)	4 (26.7)
Surgical specialty/other/undecided	30 (40.5)	6 (40.0)
Reported educational experiences (%)		
Didactic lecture	56 (75.7)	10 (66.7)
Patient counseling about abortion	67 (90.5)	4 (26.7)
Ultrasound prior to abortion	67 (90.5)	4 (26.7)
Surgical abortion procedure	67 (90.5)	1 (6.7)
Examination of products of conception	67 (90.5)	0
^a Students who attended a structured clinical abortion experience at Planned Parenthood of the Columbia-Willamette (PPCW)		
^b Students who attended an alternative ad hoc exposure to clinical abortion care at a University Family Planning Clinic (FPC).		

Table 2 shows the mean response of 100 mm VAS pre- and post-clerkship surveys regarding competence and attitude. Attitude scores among all students prior to the clerkship were mostly high, in support of abortion education with a mean VAS of 90.2 mm and 80.9 mm among PPWC and FPC students respectively. Attitudes around abortion education in medical training, the ability of patients to access

abortion and willingness to refer patients to abortion providers did not vary between either group after their clinical experiences, though scores to all questions had a mean VAS > 60 mm prior to the clerkship.

Table 2
Mean 100 mm Visual Analog Score (VAS) prior to (pre) and following (post) the clerkship.

Mean VAS response in mm (SD)	PPCW (n = 74) ^a		FPC (n = 15) ^b		p-value ^c
	Pre	Post	Pre	Post	
Attitude	90.2	90.8	80.9	73.7	< 0.01
Abortion care is an appropriate topic for medical school curriculum	(15.7)	(15.8)	(21.1)	(27.1)	< 0.01
Clinical experience in abortion care is important to offer during medical school	85.8	88.1	63.4	68.8	< 0.01
Women should be able to choose to have an abortion	(18.4)	(18.3)	(26.4)	(31.3)	0.58
I would be willing to refer patients inquiring about abortion to other clinics or providers if necessary	90.0	90.2	69.9	72.7	
	(18.2)	(17.9)	(34.5)	(35.2)	
	89.9	91.9	87.9	89.1	
	(20.4)	(15.6)	(25.0)	(25.4)	
Composite attitude	89.1	90.3	75.6	76.1	< 0.01
	(15.5)	(16.2)	(22.1)	(22.4)	
Mean difference (post-pre)	1.04 (7.3)		0.53 (7.4)		0.81
Competency	31.4	69.4	32.3	61.7	0.12
I am knowledgeable enough to discuss abortion with patients	(26.5)	(17.3)	(20.1)	(15.8)	0.01
I could adequately counsel a patient about what to expect from an abortion	24.3	70.6	24.5	57.7	0.24
I could adequately explain all options to a patient who has an unintended pregnancy	(22.6)	(17.5)	(20.1)	(19.1)	
	30.6	72.9	47.4	66.7	
	(23.9)	(19.1)	(26.2)	(16.0)	
Composite competency	28.8	71.0	34.7	62.0	0.06
	(22.6)	(16.6)	(19.2)	(15.5)	
Mean difference (post-pre)	42.2 (21.3)		27.3 (20.3)		0.02
^a Students who attended a structured clinical abortion experience at Planned Parenthood of the Columbia-Willamette (PPCW)					
^b Students who attended an alternative ad hoc exposure to clinical abortion care at a University Family Planning Clinic (FPC).					
^c p-value is for Student's t-test for comparison of mean difference between groups following clinical attendance or non-attendance.					

Mean self-reported competence regarding abortion counseling increased for both groups. However, the PPCW group had a more notable increase in competency on the 100 mm VAS score (28.1 mm to 71.5 mm for PPCW versus 34.7 mm to 62.0 mm for FPC; difference of means of 42.2 mm and 27.3 mm respectively, p = 0.02). It should be noted that pre-clerkship competency self-evaluation was higher among the FPC cohort, yet that group did not report as much of an increase and a lower overall competency following their clinical experience.

Nineteen students had an initial composite attitude score less than 80 mm, eight of whom observed an abortion. Self-perceived competence increased in all but one of these students, independent of attendance. However, of those with low initial composite attitude who attended PPCW ($n = 11$), there was a mean 43.4 mm increase on the competence VAS, compared to only a mean 27.1 mm increase in those who did not attend ($n = 8$; $p = 0.08$).

No students responded correctly to all answer choices on either the pre- or post-clerkship surveys. Following the clerkship, 59/74 (80%) of PPCW attendees and 9/15 (60%) of FPC group correctly identified that 50% of pregnancies in the US are unintended. More students in both groups could identify that all types of contraception can be initiated immediately following a surgical abortion: 35–57% for PPCW and 20–40% for FPC.

Discussion

Medical student attendance in a structured clinical abortion experience improved students self-perceived level of competence in providing accurate information regarding abortion procedures and effectively counseling future patients about all options related to terminating a pregnancy, compared to ad hoc clinical abortion experience, regardless whether they observed an abortion. It is possible to provide medical student education about abortion while recognizing that some students may have strong moral beliefs that oppose abortion. Varying levels of participation in a clinical environment focused on abortion care may increase a future medical provider's ability to administer medically accurate information to their patients.

The limitations of this study include a small sample size, and the selection bias inherent in a study dependent on self-reported surveys. Fewer students opted out of the clinical experience than we had initially predicted so the proportion of non-attendees may be too low for statistical comparison. A strength of this study is that we grouped students based on the educational environment that they attended and separately assessed the educational exposures that actually occurred.

Both the Association of Professors of Gynecology and Obstetrics (APGO) and the American College of Obstetricians and Gynecologists (ACOG) recommend that all medical school curricula include training in family planning, including contraception and abortion care. Learning about abortion is a core educational objective according to APGO, which sets national standards for medical student education.¹⁵ The three objectives related to abortion that students are expected to learn are: (1) to provide scientifically accurate nondirective counseling to patients surrounding pregnancy options, (2) to explain surgical and nonsurgical methods of pregnancy termination, and (3) to identify potential complications of induced abortion. However, medical students are frequently not provided with education to meet these objectives.^{9,10,16}

A 2009 study of medical schools in the US and Canada reported that 67% included an abortion lecture in the preclinical curricula.⁹ The remaining 33% did not include any discussion of abortion procedures,

pregnancy options counseling, post-abortion care, or abortion law/policy/availability in their curriculum. A survey of Ob/Gyn medical student clerkship directors showed that 17% of programs had no formal abortion education and 55% did not offer clinical training or exposure.¹⁰ Abortion education is inconsistently received by students. In 2009, only 24% of medical students at the University of Colorado reported clinical exposure to abortion and 57% did not have any formal didactic training in abortion.¹⁶

Ob/Gyn residents who morally object to performing abortion are offered partial participation in abortion training up to their level of comfort at many institutions, a practice which has been shown to improve knowledge, capability, and the improved ability to care for patients with miscarriage.^{17,18} Even among Ob/Gyn residency training programs dedicated to increasing exposure to abortion care, many centers in non-restrictive environments still face significant barriers to providing adequate training around abortions.¹⁹ When a partial participation format is applied to undergraduate medical education with structured access to clinical abortion, a larger proportion of students are exposed to abortion education, regardless of chosen specialty training, potentially increasing knowledge and professionalism among future healthcare providers.

Conclusions

Learning about abortion medical care is a core educational objective according to the Association of Professors of Gynecology and Obstetrics (APGO). We assessed medical student competency, attitudes, and knowledge about abortion medical care before and after a partial participation program in clinical abortion during the Ob/Gyn clerkship. Those who participated in a structured clinical abortion environment, at a local Planned Parenthood affiliate, experienced increased competency, attitudes and knowledge scores, compared to those who attended a family planning clinic not primarily focused on abortion. In particular, the structured clinical abortion environment resulted in an increase in the student's self-reported competence to counsel a patient about what to expect from an abortion, regardless whether they observed an abortion. We demonstrate that partial participation programs are acceptable to students regardless of moral beliefs and that a structured clinical abortion environment provides more effective learning outcomes, even with partial participation.

List Of Abbreviations

APGO: Association of Professors of Gynecology and Obstetrics; VAS: Visual Analog Scale; OHSU: Oregon Health & Science University; PPCW: Planned Parenthood of the Columbia-Willamette; FPC: Family Planning Clinic; ACOG: American College of Obstetricians and Gynecologists

Declarations

Ethics approval and consent to participate: The study was approved for a waiver of consent by the OHSU Institutional Review Board.

Consent for publication: Not applicable

Availability of data and materials: The datasets generated and analyzed during this study are not publicly available due to potential breach of privacy, but are available from the corresponding author on reasonable request.

Competing interests: The authors declare that they have no competing interests.

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Authors contributions: HG designed the study, created data collection instruments, collected primary data, contributed to the manuscript writing, and reviewed the final manuscript. MZ performed final data analysis and edited the manuscript. MF wrote portions of the manuscript, created tables, and reviewed the final manuscript. MB provided mentorship and supervision for IRB submission, protocol development, manuscript writing and editing, and reviewed the final manuscript.

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